

REMARKS

This paper is being provided in response to the Office Action dated July 22, 2009, for the above-referenced application. In this response, Applicant has amended claims 1 and 25 to clarify that which Applicant considers to be the presently-claimed invention. Applicant respectfully submits that the amendments to the claims are fully supported by the originally-filed specification, consistent with the discussion herein.

Applicant thanks the Examiner for the courtesies extended in the telephone discussion with Applicant's representative on December 17, 2009. In this discussion, potential amendments were discussed to differentiate Applicant's claims from the DeCaro reference, specifically, clarifying the parallel connection of the current adjustment resistor and the reference resistor, as recited by Applicant, to distinguish from the resistors in series cited in the Office Action (see page 10) with respect to DeCaro. The amendments proposed herein have been provided based on this discussion.

Applicant notes that claims 4, 5 and 8-12 have been maintained in the application in withdrawn status and submits that upon allowance of a base generic claim, these claims should be rejoined to the application and also allowed as provided under MPEP 821.04 and 37 C.F.R. 1.141.

The rejection of claims 1, 2, 25 and 29 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,965,360 to DeCaro, et al. (hereinafter "DeCaro") is hereby traversed and

reconsideration is respectfully requested in view of the amendments to the claims contained herein. Applicant notes that claim 2 has previously cancelled.

Independent claim 1, as amended herein, recites a current-drive apparatus for a display panel. A plurality of current-drive circuits are included, each of said plurality of current-drive circuits including first and second terminals, a reference resistor connected between said first and second terminals and a reference current generation circuit to produce at least one internal reference current responding to a voltage generated based on the reference resistor. A current source and said plurality of current-drive circuits are connected such that a current flowing through said current source becomes substantially equal to a current flowing through said reference resistor of each of said current-drive circuits, wherein a current flowing through said reference resistor in a first one of said current-drive circuits flows through said reference resistor in a second one of said current-drive circuits, and wherein said current drive circuits are coupled in series in a manner that said first terminal of a preceding one of said current drive circuits is connected to the second terminal of a succeeding one of said current-drive circuits which is adjacent to the preceding one of said current-drive circuits. At least one of said plurality of current-drive circuits further includes at least one current adjustment resistor, wherein the at least one current adjustment resistor operates such that a reference voltage generated based on voltage at both ends of said reference resistor is applied across said at least one current adjustment resistor to generate said at least one internal reference current. Claims 4-12 and 29 depend directly or indirectly from independent claim 1.

Independent claim 25, as amended herein, recites a current-drive system for a display panel including first and second power source lines. A plurality of current-drive ICs are included, each of said plurality of current-drive ICs having first and second terminals and having a first resistor connected between said first and second terminals. A current source is connected to said plurality of current-drive ICs so that said ICs and said current source are connected in cascade with said first and second terminals between first and second power source lines, wherein said ICs are coupled in series between said first power source line and said current source in such a manner that the second terminal of a preceding one of said ICs is connected to the first terminal of a succeeding one of said ICs. At least one of said plurality of current-drive ICs produces an internal reference voltage based on a voltage generated at both ends of said first resistor, and wherein at least one of said plurality of current drive ICs further includes a second resistor having a first end coupled to one end of the first resistor and having a second end coupled to the other end of the first resistor. Claim 28 depends from independent claim 25.

DeCaro discloses a method of current matching in integrated circuits. The Office Action cites principally to Figures 2 and 7 of DeCaro. Specifically, Applicant notes that the Office Action identifies resistor elements 288 and 282 in Figure 2 of DeCaro as akin to Applicant's recited reference resistor (first resistor) and identifies resistor elements 240 and 242 as akin to Applicant's recited current adjustment resistor (second resistor).

Applicant's independent claim 1 has been amended to recite that at least one of said plurality of current-drive circuits further includes at least one current adjustment resistor, wherein said at least one current adjustment resistor operates such that a reference voltage based

on voltage at both ends of said reference resistor is applied across said at least one current adjustment resistor to generate said at least one internal reference current. Independent claim 25 has also been amended to include similar related features. Applicant submits that the amended independent claims describe a parallel connection between the current adjustment resistor (second resistor) and the reference resistor (first resistor). Applicants refer to Figure 5 and page 13, line 5 to page 14, line 15 of the originally-filed specification in which is shown the current adjustment resistor R connected with both ends of reference resistor R_r (though the Op amps 11 and 12), the connection therefore being in parallel. The voltage (v₃ and v₄) at both ends of the current adjustment resistor R is decided by the voltage (v₁ and v₂) at both ends of the reference resistor R_r. The voltage (v₃ and v₄) at both ends of the current adjustment resistor R and the voltage (v₁ and v₂) at both ends of reference resistor R_r become almost the same voltage by this structure.

In contrast, the resistor 240/242 in De Caro (cited as akin to Applicant's current adjustment resistor) is not connected with both ends of the resistor 282/288 (cited as akin to Applicant's reference resistor) in parallel according to the features like that presently recited by Applicant. Specifically, the voltage at both ends of the resistor 240/242 (current adjustment resistor) is not decided by the voltage at both ends of the resistor 282/288 (reference resistor). That is, De Caro's resistors 282,288 are connected in series with resistors 240, 242, which is as stated in the Office Action (see page 10). Current through the resistors 288, 282 and the resistors 240, 242, connected in series, flows between the common electrical connection (280) and GND. Accordingly, Applicant submits that DeCaro does not teach or fairly suggest the above-noted

features as recited by Applicant. In view of the above, Applicant respectfully request that the rejection be reconsidered and withdrawn.

The rejection of claims 6, 7 and 28 under 35 U.S.C. 103(a) as being unpatentable over DeCaro in view of U.S. Patent No. 6,188,395 to Yatabe, et al. (hereinafter "Yatabe") is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

The features of independent claims 1 and 25 are discussed above in connection with DeCaro. Claims 6, 7 and 28 depend therefrom.

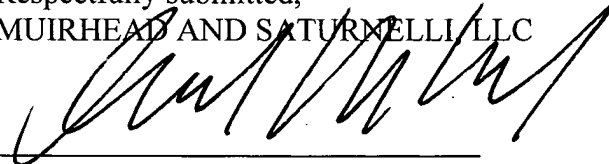
Yatabe discloses a power source circuit, a power source for driving a liquid crystal display and a liquid crystal display device. The Office Action cites to Yatabe as disclosing that a reference resistor of a current-drive circuit located on the side of a high voltage supply is connected to the high voltage supply through a voltage adjustment resistor and a reference resistor of a current-drive circuit located on the side of a low voltage supply is connected to the current source, citing to Fig. 1 and col. 7, lines 1-20 of Yatabe.

Applicant respectfully submits that Yatabe does not overcome the above-noted deficiencies of the DeCaro reference with respect to Applicant's present claims. Yatabe does not disclose, nor is Yatabe cited by the Office Action in connection with, Applicant's recited features that are discussed above with respect to DeCaro. Accordingly, Applicant respectfully submits that DeCaro and Yatabe, taken alone or in combination, do not teach or fairly suggest at least the

above-noted features as claimed by Applicant. In view of the above, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

Based on the above, Applicant respectfully requests that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8603.

Respectfully submitted,
MUIRHEAD AND SATURNELLI LLC



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Donald W. Muirhead
Registration No. 33,978

Muirhead and Saturnelli, LLC
200 Friberg Parkway, Suite 1001
Westborough, MA 01581
Phone: (508) 898-8601
Fax: (508) 898-8602